National Aeronautics and Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

Trivia returns

The year end trivia page returns for employees to test NASA knowledge. Story on Page 3.

Book fair

Employees take advantage of discount prices during the book and computer fairs in Bldg. 3. Photo on Page 4.

Space News Roundup

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JSC deputy director to fly shuttle mission

Duffy named acting deputy director of JSC

Brian Duffy will take over the duties of JSC's deputy director while the current deputy, Jim Weatherbee, returns to the Astronaut Office to prepare for the STS-86 mission.

Duffy will serve as acting deputy director. A veteran of three space flights, Duffy was the pilot on STS-45, the first of the ATLAS series of missions to address the atmosphere and its interaction with the Sun. He also was the pilot on STS-57 that included retrieval of the European Retrievable Carrier with the shuttle's robotic arm. Most recently, Duffy commanded STS-72 that retrieved the Space Flyer Unit, deployed and retrieved the OAST-Flyer.

Tom Akers will replace Duffy as assistant director, technical. He is a veteran of four space flights: STS-41 in 1990, STS-49 in 1992, STS-61 in 1993, and STS-79 in 1996. His experience includes the repair of the Hubble Space Telescope.

In addition, Astronaut Linda Godwin will serve as acting deputy

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Wetherbee to lead seventh shuttle/Mir mission

Astronaut Jim Wetherbee will command an international crew on STS-86, the seventh of nine planned missions to dock with the Russian Mir Space Station. STS-86 is targeted for a September 1997 launch.

Joining Wetherbee will be Pilot Mike Bloomfield, Mission Specialists Scott Parazynski, Vladimir Titov of the Russian Space Agency and Jean-Loup Chretien of the French Space Agency.

Previously named to the crew is Wendy Lawrence, who will remain on Mir for a four-month research mission as a member of the Mir 23 and 24 crews. Lawrence will replace Astronaut Mike Foale who will end his stay as part of the Mir 23 crew and return to Earth on *Atlantis*.

STS-86 reunites three members of the STS-63 crew that performed the first rendezvous of an American spacecraft with Mir. Wetherbee, Titov and Foale were members of *Discovery*'s mission in which the shuttle approached to within 37 feet

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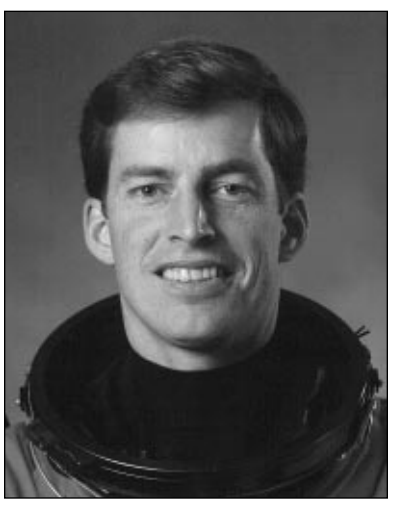

Jim Wetherbee

Atlantis rolls to launch pad for Mir mission

By James Hartsfield

As technicians began removing cargo and analyzing a stuck hatch on *Columbia* following its return from a record-long flight, *Atlantis* moved to the launch pad this week to prepare for a January liftoff on STS-81, the fifth shuttle-Mir docking.

Workers removed the Wake Shield Facility with its full set of space-grown semiconductor materials and the ORFEUS-SPAS satellite with its data on the makeup of stars from *Columbia* on Wednesday.

Earlier in the week, troubleshooting of the jammed outer airlock hatch that prevented two space walks on STS-80 found a loosened and missing screw in the gear hub that apparently caused the problem. The screw was missing from a position in a brake mechanism in the gearbox and is believed to have been caught in the gears, jamming them and preventing opening of the latches on the hatch. Following the analysis, plans are being formulated to ensure similar occurrences do not take place in the future. The hatches on *Atlantis* and *Discovery* will be double-checked as well.

Meanwhile, *Atlantis* rolled out of the Vehicle Assembly Bldg. to Launch Pad 39B on Tuesday, targeted for a launch as early as Jan. 12. On Thursday, the Spacehab module was to be installed in the cargo bay. Also, the three auxiliary power units were test-run after *Atlantis* reached the pad. Upcoming STS-81 milestones include a dress rehearsal countdown with Commander Mike Baker, Pilot Brent Jett and Mission Specialists John Grunsfeld, Marsha Ivins, Peter Wisoff and Jerry Linenger on Monday.

JSC Photo by Robert Markowitz

Commander Ken Cockrell, kneeling, receives a hug from his son, Nathaniel, as his wife, Joan, hugs their daughter, Madeline, Sunday at Ellington Field upon Cockrell's return from a record-setting mission. The Cockrells returned to Houston with, from left, Mission Specialist Tom Jones and his wife, Elizabeth, and Mission Specialists Story Musgrave and Tammy Jernigan.

STS-80 sets shuttle record

By Karen Schmidt

With a landing at Kennedy Space Center Saturday, STS-80 enters the record books as the longest shuttle flight in history.

Columbia landed at 5:49 a.m. CST setting a record at 17 days, 15 hours and 53 minutes breaking the previous mark set by STS-78 in July. The crew deployed and retrieved two science satellites—one that studied stars and another that made thin film wafers—during *Columbia*'s two weeks aloft.

Commander Ken Cockrell, Pilot Ken Rominger and Mission Specialists Tammy Jernigan, Tom Jones and Story Musgrave returned to Houston on Sunday in awe of their experience .

"Let me thank you all for your effort in this flight," Cockrell said to fellow workers gathered at Ellington Field. "We are just the privileged small part of the team that gets to go on the flight. You are the ones that do the work and are the biggest contributors to a flight."

Rominger recounted how impressive it was

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Station's first module ready for testing

The first major component of the International Space Station has been completed on schedule and budget.

Russia's Khrunichev Industries, working under contract to NASA's prime contractor, Boeing, has completed assembly of the Functional Cargo Block, or FGB, which will be launched in one year and will provide initial power and propulsion for the space station.

The FGB, a 20-ton pressurized spacecraft, will be launched on a Russian Proton vehicle in November.

"The first piece of space station is on track and will be ready to launch in just 12 months," said Virginia Barnes, FGB program manager. "The people of Khrunichev worked hard to make this happen, and we are all excited to be playing such a crucial role in this new chapter of space exploration."

In May, the FGB will be transported from Moscow to the Baikonur launch complex, where it will undergo final checkout and be mated to a Proton rocket.

"Most of the subsystem hardware has been installed including the propulsion system, the onboard computers, lighting power supply, solar array orientation system, thermal controls, fire detection, and guidance, navigation and control," Barnes said. "The subsystems will now undergo functional testing until the FGB is transported to the launch site."

A week after the FGB launch, an interconnecting node module, built by Boeing in Huntsville, Ala., will be launched from the Kennedy Space Center on a shuttle. Astronauts will link the two modules in space, signaling the beginning of the largest space-based construction project in history. The FGB will provide orbital control, communications and power to the node.

During this period, the FGB will control the motion and define the altitude of the station's orbit. Later in the assembly of the station, as additional modules are added, the FGB will serve as a storage and experimentation facility. In addition, its external fuel tanks will continue to be used throughout the lifetime of the station.

"This is an exciting time for the FGB team," Barnes said. "In the next 12 months we will be preparing to launch and to unite our two countries in building the International Space Station."

Blaha writes home about supply docking

(Editors note: Mir 22 cosmonaut Researcher John Blaha recently sent a letter home from the Russian Mir Space Station as the crew prepares for Atlantis' arrival in January)

We started preparing for the arrival of a Progress resupply vehicle two days before the launch. We started loading up the old Progress docked to the Kvant Module and we put all our dirty clothes, trash, equipment nobody wanted, 600 liters of urine and waste into the cargo bay.

We started sleep shifting two days before launch, because we planned to undock the old Progress at 2 a.m. and dock the new Progress about 26 hours later. We, of course, waited until we knew the new Progress launch was successful and the space ship was going to have a good chance of docking with us before the old one was undocked.

At midnight, Valarie, Sasha and I worked with engineers on the ground to ensure we had a good seal with the hatch leading to the old Progress. When everyone was convinced we had a good seal, the Moscow Control Center sent commands to automatically undock the old Progress. Valarie installed a special control system near the base block station and was ready to fly the Progress manually, if required. He had a TV monitor that displayed Mir as seen from Progress.

About 10 minutes after the Progress undocked, we could visually see it at about 100 meters through a large window in the floor of the base block. It was beautiful to watch this big beautiful machine with solar panels—they looked like airplane wings—pull away and finally disappear.

Twenty-four hours later we were eagerly awaiting the arrival of the new Progress. I was in the Kvant 2 module looking through one of the small windows. I finally saw the Progress at a distance of 30 kilometers. It was a shinning star rising towards us at great speed from beneath the horizon. This was an incredible sight. There we were approaching the terminator on planet Earth, and this "beaming" shining star was roaring towards us. Then all of a sudden, the light from the Progress extinguished as we passed into the shade of the Earth. Five seconds later, four lights on the Progress were turned on. I watched the remainder of the rendezvous through a tiny window in the aft end of the Kvant module; right at the point where the docking would

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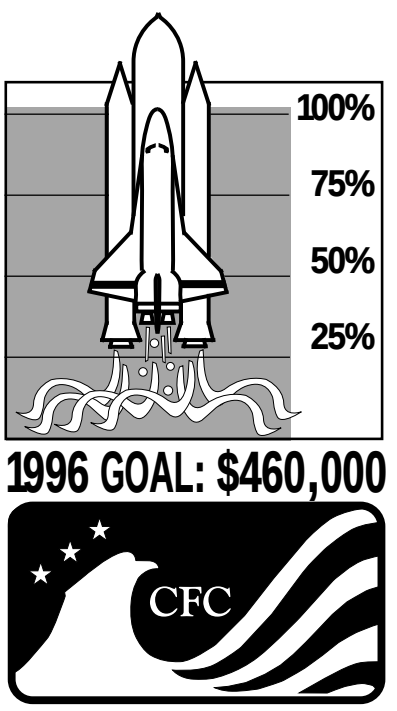

CFC donations exceeds goals

JSC employees are continuing to contribute to the Combined Federal Campaign with contributions as of Dec. 10, exceeding $476,339.64.

This is three percent above the goal and represents contributions from 65 percent of JSC employees. Fourteen organizations gave more than 100 percent of their 1996 goals.

There were 174 employees who contributed one-hour's pay and 22 employees who contributed two-hour's pay; and 184 employees contributed more than $600 per year.

The offices that exceeded their goal were the Office of the Director, Human Resources Office, Office of the Chief Information Officer, Equal Opportunity Programs Office, Legal Office, Flight Crew Operations,

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